

IN THE CLAIMS:

Please amend Claims 1-12 and 14-16, and add new Claims 17-23, as follows.

1. (Currently Amended) A method of producing an image-forming apparatus wherein a face plate having phosphors of the three primary colors is opposed to a rear plate comprising a plurality of electron-emitting devices, each having a first electrode and a second electrode, and a plurality of column-directional wires and row-directional wires are connected to the plurality of electron-emitting devices, said method comprising:

(a) a step of arranging a plurality of first electrodes and second electrodes on the rear plate;

(b) a step of forming ~~a~~ the plurality of column-directional wires, wherein each of ~~said~~ the column-directional wires connects commonly a plurality of ~~said~~ the first electrodes;

(c) a step of forming ~~a~~ the plurality of row-directional wires, wherein each of ~~said~~ the row-directional wires connects commonly a plurality of ~~said~~ the second electrodes,

~~the row direction is substantially perpendicular to the column direction, and~~  
intervals of ~~said~~ the row-directional wires are larger than those of ~~said~~ the column-directional wires; and

each of the row-directional wires cross some of the column-directional wires;

(d) a step of forming an insulating layer ~~between a row-directional wire and a column-directional wire~~ at each of intersections between ~~said the~~ row-directional wires and column-directional wires; and

(e) a step of applying a liquid containing at least a metal or a semiconductor so as to connect ~~said the~~ first and second electrodes to each other according to an ink jet method,

wherein, at each of ~~said the~~ intersections, each of ~~said the~~ column-directional wires is disposed between each of ~~said the~~ row-directional wires and ~~said the~~ rear plate, and

wherein said step of forming the column-directional wires comprises:

a step of forming a film comprising a photosensitive material and an electroconductive material on ~~said the~~ rear plate;

a step of irradiating desired areas of ~~said the~~ film with light;

a step of patterning ~~said the~~ film; and

a step of baking ~~said the~~ patterned film.

2. (Currently Amended) The production method of the image-forming apparatus according to Claim 1, wherein said step of forming the film comprising the photosensitive material and the electroconductive material on ~~said the~~ rear plate is a step of applying ~~said the~~ film in a first pattern.

3. (Currently Amended) The production method of the image-forming apparatus according to Claim 2, wherein said step of applying ~~step in said~~ the first pattern is a step of selectively forming the film comprising ~~said~~ the photosensitive material and electroconductive material on ~~said~~ the rear plate through apertures of a mask having ~~said~~ the apertures of a desired shape.

4. (Currently Amended) The production method of the image-forming apparatus according to either one of Claims 1 to 3, wherein ~~said~~ the first electrodes and second electrodes are formed according to an offset printing method.

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5. (Currently Amended) The production method of the image-forming apparatus according to any one of Claims 1 to 3, wherein a direction in which ~~said~~ the first and second electrodes are opposing is substantially coincident with a longitudinal direction of ~~said~~ the row-directional wires.

6. (Currently Amended) A method of producing an image-forming apparatus which comprises a face plate having phosphors, a rear plate having a plurality of electron-emitting devices and a plurality of wirings connected to the plurality of electron-emitting devices, said method comprising the steps of:

(a) ~~a step of~~ arranging a plurality of first electrodes and second electrodes on ~~a~~ the rear plate;

(b) ~~a step of~~ forming a plurality of column-directional wirings,

wherein each of ~~said~~ the row-directional wirings connects some of the first electrodes,

(c) ~~a step of~~ forming a plurality of row-directional wirings,

wherein each of ~~said~~ the row-directional wirings connects some of the second electrodes,

~~the row direction is substantially perpendicular to the column direction~~ each of the row-directional wirings cross some of the column-directional wirings; and

(d) ~~a step of~~ forming an insulating layer ~~between a row-directional wiring and a column-directional wiring~~ at each of intersections between ~~said~~ the row-directional wirings and column-directional wirings,

wherein a cross-sectional area of ~~said~~ the row-directional wirings is larger than a cross sectional area of ~~said~~ the column-directional wirings, and

wherein said step of forming the column-directional wirings comprises:

~~a step of~~ (e) forming a film comprising a photosensitive material and an electroconductive material on ~~said~~ the rear plate;

~~a step of~~ (f) irradiating desired areas of ~~said~~ the film with light;

~~a step of~~ (g) patterning ~~said~~ the film; and

~~a step of~~ (h) baking ~~said~~ the patterned film.

7. (Currently Amended) A method of producing an image-forming apparatus which comprises a face plate having phosphors, a rear plate having a plurality of

electron-emitting devices and a plurality of wirings connected to the plurality of electron-emitting devices, said method comprising the steps of:

(a) ~~a step of~~ arranging a plurality of first electrodes and second electrodes on ~~a~~ the rear plate;

(b) ~~a step of~~ forming a plurality of column-directional wirings,  
wherein each of ~~said~~ the column-directional wirings connects some of the first electrodes;

(c) ~~a step of~~ forming a plurality of row-directional wirings,  
wherein each of ~~said~~ the row-directional wirings connects some of the second electrodes,

~~the row direction is substantially perpendicular to the column direction~~ each of the row-directional wirings cross some of the column-directional wirings; and

(d) ~~a step of~~ forming an insulating layer ~~between a row-directional wiring and a column-directional wiring~~ at each of intersections between ~~said~~ the row-directional wirings and column-directional wirings,

wherein a width of ~~said~~ the row-directional wirings is wider than a width of ~~said~~ the column-directional wirings, and

wherein said step of forming the column-directional wirings comprises:

~~a step of~~ (e) forming a film comprising a photosensitive material and an electroconductive material on ~~said~~ the rear plate;

~~a step of~~ (f) irradiating desired areas of ~~said~~ the film with light;

~~a step of~~ (g) patterning ~~said~~ the film; and

~~a step of~~ (h) baking ~~said~~ the patterned film.

8. (Currently Amended) A method of producing an image-forming apparatus which comprises a face plate having phosphors, a rear plate having a plurality of electron-emitting devices and a plurality of wirings connected to the plurality of electron-emitting devices, said method comprising the steps of:

(a) ~~a step of~~ arranging a plurality of first electrodes and second electrodes on a the rear plate;

(b) ~~a step of~~ forming a plurality of column-directional wirings, wherein each of ~~said~~ the column-directional wirings connects some of the first electrodes;

(c) ~~a step of~~ forming a plurality of row-directional wirings, wherein each of ~~said~~ the row-directional wirings connects some of the second electrodes,

~~the row direction is substantially perpendicular to the column direction~~ each of the row-directional wirings cross some of the column-directional wirings; and

(d) ~~a step of~~ forming an insulating layer ~~between a row-directional wiring and a column-directional wiring~~ at each of intersections between ~~said~~ the row-directional wirings and column-directional wirings,

wherein a thickness of ~~said~~ the row-directional wirings is thicker than a thickness of ~~said~~ the column-directional wirings, and

wherein said step of forming the column-directional wirings comprises:

~~a step of (e)~~ forming a film comprising a photosensitive material and an electroconductive material on ~~said the~~ rear plate;

~~a step of (f)~~ irradiating desired areas of ~~said the~~ film with light;

~~a step of (g)~~ patterning ~~said the~~ film; and

~~a step of (h)~~ baking ~~said the~~ patterned film.

9. (Currently Amended) The production method of the image-forming apparatus according to any one of Claims 1 to 3, wherein ~~said the~~ image-forming apparatus further comprises a spacer for supporting the space between ~~said the~~ face plate and rear plate, ~~said the~~ spacer being placed on ~~said the~~ row-directional wire.

10. (Currently Amended) A method of producing an image-forming apparatus wherein a face plate having a phosphor is opposed to a rear plate comprising a plurality of electron-emitting devices, each having a first electrode and a second electrode, and a plurality of wires ~~connected~~ connects to the plurality of electron-emitting devices, said method comprising:

(a) a step of arranging a plurality of first electrodes and second electrodes on the rear plate;

(b) a step of selectively forming a film comprising a photosensitive material and an electroconductive material on ~~said the~~ rear plate through apertures of a mask having the apertures of a desired shape;

- (c) a step of irradiating desired areas of the film formed on ~~said~~ the rear plate, with light;
- (d) a step of patterning ~~said~~ the film;
- (e) a step of baking ~~said~~ the patterned film to form a plurality of wires connected to ~~said~~ the electrodes; and
- (f) a step of forming an electroconductive film so as to connect ~~said~~ the first and second electrodes to each other.

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11. (Currently Amended) The production method of the image-forming apparatus according to Claim 10, said production method of the image-forming apparatus further comprising a step of forming a fissure in the electroconductive film placed between ~~said~~ the electrodes.

12. (Currently Amended) The production method of the image-forming apparatus according to Claim 11, wherein ~~said~~ the fissure is formed by allowing an electric current to flow in ~~said~~ the electroconductive film.

13. (Previously Amended) An image-forming apparatus produced by the production method as set forth in any one of Claims 1 to 3, 10 to 12, and 14.

14. (Currently Amended) A method of producing an image-forming apparatus wherein a face plate having a phosphor is opposed to a rear plate comprising a



plurality of electron-emitting devices, each having a first electrode and a second electrode, and a plurality of wires ~~connected~~ connects to the plurality of electron-emitting devices, said method comprising:

(a) a step of arranging a plurality of first electrodes and second electrodes on the rear plate;

(b) a step of selectively forming a film comprising a photosensitive material and an electroconductive material on the rear plate through apertures of a mask, the apertures having a desired shape;

(c) a step of irradiating desired areas of the film formed on the rear plate with light;

(d) a step of patterning the film; and

(e) a step of baking the patterned film to form a plurality of wires connected to the electrodes.

15. (Currently Amended) A method of producing an image-forming apparatus which comprises a face plate having phosphors, a rear plate having a plurality of electron-emitting devices and a plurality of wirings connected to the plurality of electron-emitting devices, said method comprising:

(a) a step of arranging a plurality of first electrodes and second electrodes on ~~a~~ the rear plate;

(b) a step of forming a plurality of column-directional wirings,

wherein each of ~~said~~ the column-directional wirings connects some of the first electrodes;

(c) a step of forming a plurality of row-directional wirings by using screen printing method,

wherein each of ~~said~~ the row-directional wirings connects some of the second electrodes, and

~~the row direction is substantially perpendicular to the column direction~~ each of the row-directional wirings cross some of the column-directional wirings; and

(d) a step of forming an insulating layer ~~between a row-directional wiring and a column-directional wiring~~ at each of intersections between ~~said~~ the row-directional wirings and column-directional wirings,

wherein, said step of forming the column-directional wirings comprises:

a step of forming a film comprising a photosensitive material and an electroconductive material on ~~said~~ the rear plate;

a step of irradiating desired areas of ~~said~~ the film with light;

a step of patterning ~~said~~ the film; and


a step of baking ~~said~~ the patterned film.

16. (Currently Amended) A method of producing an image-forming apparatus which comprises a face plate having phosphors, a rear plate having a plurality of electron-emitting devices and a plurality of wirings connected to the plurality of electron-emitting devices, said method comprising:

(a) a step of arranging a plurality of first electrodes and second electrodes on a rear plate;

(b) a step of forming a plurality of column-directional wirings, wherein each of ~~said~~ the column-directional wirings connects some of the first electrodes;

(c) a step of forming a plurality of row-directional wirings, wherein each of ~~said~~ the row-directional wirings connects some of the second electrodes, and

 ~~the row direction is substantially perpendicular to the column direction~~ each of the row-directional wirings cross some of the column-directional wirings; and

(d) a step of forming an insulating layer ~~between a row-directional wiring and a column-directional wiring~~ at each of intersections between ~~said~~ the row-directional wirings and column-directional wirings,

wherein, at each of ~~said~~ the intersections, each of ~~said~~ the column-directional wirings is disposed between each of ~~said~~ the row-directional wirings and ~~said~~ the rear plate, and

wherein said step of forming the column-directional wirings comprises:  
a step of forming a film comprising a photosensitive material and an electroconductive material on ~~said~~ the rear plate;

a step of irradiating desired areas of ~~said~~ the film with light;

a step of patterning ~~said~~ the film; and

a step of baking ~~said~~ the patterned film.

17. (New) A method of producing an electron source substrate which comprises a rear plate having a plurality of electron-emitting devices and a plurality of wiring connected to the plurality of electron-emitting devices, said method comprising the steps of:

(a) forming a plurality of column-directional wirings; and

(b) forming a plurality of row-directional wirings, wherein each of the row-directional wirings cross some of the column-directional wirings,

wherein a cross-sectional area of the row-directional wirings is larger than a cross-sectional area of the column-directional wirings, and

wherein said step of forming the column-directional wiring comprises:

(c) forming a film comprising a photosensitive material and an electroconductive material on the rear plate;

(d) irradiating desired areas of the film with light;

(e) patterning the film; and

(f) baking the patterned film.

18. (New) A method of producing an electron source substrate which comprises a rear plate having a plurality of electron-emitting devices and a plurality of wirings connected to the plurality of electron-emitting devices, said method comprising the steps:

(a) forming a plurality of column-directional wirings; and

(b) forming a plurality of row-directional wirings, wherein each of the row-directional wirings cross some of the column-directional wirings,

wherein a width of the row-directional wirings is wider than a width of the column-directional wirings, and

wherein said step of forming the column-directional wirings comprises:

(c) forming a film comprising a photosensitive material and an electroconductive material on the rear plate;

(d) irradiating desired areas of the film with light;

(e) patterning the film; and

(f) baking the patterned film.

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19. (New) A method of producing an electron source substrate which comprises a rear plate having a plurality of electron-emitting devices and a plurality of wirings connected to the plurality of electron-emitting devices, said method comprising the steps of:

(a) forming a plurality of column-directional wirings; and

(b) forming a plurality of row-directional wirings,

wherein each of the row-directional wirings cross some of the column-directional wirings,

wherein a thickness of the row-directional wirings is thicker than a thickness of the column-directional wirings, and

wherein said step of forming the column-directional wiring comprises:

(c) forming a film comprising a photosensitive material and an electroconductive material on the rear plate;

(d) irradiating desired areas of the film with light;

(e) patterning the film; and

(f) baking the patterned film.

20. (New) A method of producing an electron source substrate comprises a rear plate having a plurality of electron-emitting devices and a plurality wirings connected to the plurality of electron-emitting devices, said method comprising the steps of:

(a) forming a plurality of column-directional wirings; and

(b) forming a plurality of row-directional wirings,

wherein each of the row-directional wirings cross some of the column-directional wirings,

wherein said step of forming the column-directional wiring comprises:

(c) forming a film comprising a photosensitive material and an electroconductive material on the rear plate;

(d) irradiating desired areas of the film with light;

(e) patterning the film; and

(f) baking the patterned film;

(g) connecting a scanning circuit for generating a scanning signal to the plurality of column-directional wirings; and

(h) connecting a modulation circuit for generating a modulation signal to the plurality of column-directional wirings.

21. (New) A method of producing an image-forming apparatus which comprises a face plate having phosphors and a rear plate having a plurality of electron-emitting devices and a plurality wirings connected to the plurality of electron-emitting devices, said method comprising the steps of:

(a) forming a plurality of column-directional wirings; and

(b) forming a plurality of row-directional wirings,

wherein each of the row-directional wirings cross some of the column-directional wirings,

wherein said step of forming the column-directional wiring comprises:

(c) forming a film comprising a photosensitive material and an electroconductive material on the rear plate;

(d) irradiating desired areas of the film with light;

(e) patterning the film; and

(f) baking the patterned film;

(g) connecting a scanning circuit for generating a scanning signal to the plurality of column-directional wirings; and

(h) connecting a modulation circuit for generating a modulation signal to the plurality of column-directional wirings.

22. (New) The production method of the electron source substrate according to claim 20, further comprising a step of arranging a plurality of electrode pairs on the rear plate, wherein first electrodes of each pair connect to the row-directional wirings and second electrodes of each pair connect to the column-directional wirings.

23. (New) The production method of the image-forming apparatus according to claim 21, further comprising a step of arranging a plurality of electrode pairs on the rear plate, wherein first electrodes of each pair connect to the row-directional wirings and second electrodes of each pair connect to the column-directional wirings.